

The invention in which an exclusive right is claimed is defined by the following:

1. An ultrasonic system for destroying undesired tissue at an internal site within a body of a patient, comprising:

(a) a probe that is sized to be inserted within a body of a patient;

(b) an ultrasonic transducer mounted proximate a distal end of the probe, said ultrasonic transducer being adapted to couple to a power supply to selectively energize the ultrasonic transducer so that it produces a focused beam of high intensity ultrasonic energy; and

(c) an ultrasound transmissive interface that is coupled to the distal end of the probe, said ultrasound transmissive interface being disposed and adapted to conform to a surface of the undesired tissue and provide a liquid layer that more efficiently transmits the high intensity ultrasonic energy produced by the ultrasonic transducer into the undesired tissue, said high intensity ultrasonic energy increasing a temperature of the undesired tissue sufficiently to cause the undesired tissue to necrose.

2. The ultrasonic system of Claim 1, wherein the ultrasound transmissive interface comprises an elastomeric cavity that is adapted to contain a liquid, said elastomeric cavity being disposed between the ultrasonic transducer and the surface of the undesired tissue so that the high intensity ultrasonic energy passes through the liquid within the elastomeric cavity and into the undesired tissue.

3. The ultrasonic system of Claim 2, wherein the elastomeric cavity is formed at least in part from a semi-permeable membrane, so that the liquid from within the elastomeric cavity weeps onto a surface of undesired tissue to increase an efficiency for coupling the high intensity ultrasonic energy into the undesired tissue.

4. The ultrasonic system of Claim 2, wherein the ultrasound transmissive interface comprises a cap made of an elastomeric material and disposed to surround the ultrasonic transducer, said cap being adapted to seal against the undesired tissue and to contain a liquid that increases an efficiency with which the high intensity ultrasonic energy is coupled into the undesired tissue.

5. The ultrasonic system of Claim 4, wherein the cap includes a rim having a double lip formed around a perimeter and includes a passage adapted to couple to a vacuum line so that the rim of the cap is held against a surface of the undesirable tissue, sealing the liquid inside of the cap.

6. A method for administering an ultrasonic therapy to destroy at least a portion of an undesired tissue mass, comprising the steps of:

(a) providing an ultrasonic transducer that emits a focused high energy ultrasonic energy when energized;

(b) positioning the ultrasonic transducer proximate the undesired tissue mass;

(c) directing the ultrasonic transducer toward a desired focal point within the undesired tissue mass;

(d) energizing the ultrasonic transducer so that it emits the focused high energy ultrasonic energy at the desired focal point, causing necrosis of a portion of the undesired tissue mass disposed at the desired focal point; and

(e) controlling at least one of an f-number, an intensity, a time, and a direction of the high intensity ultrasonic energy emitted into the undesired tissue mass to achieve a desired shape and size of a necrotic zone of undesired tissue destroyed as a result of being heated by the high intensity ultrasonic energy, said necrotic zone substantially blocking the high intensity ultrasonic energy from penetrating beyond the necrotic zone, said desired shape and size of the necrotic zone being selected and formed so as to cause substantially all of the undesired tissue mass to ultimately be destroyed.

7. The method of Claim 6, wherein the step of controlling comprises the step of repositioning the ultrasonic transducer to direct the high intensity ultrasonic energy at a different portion of the undesired tissue mass, to achieve the desired shape and size of the necrotic zone.

8. The method of Claim 6, wherein the desired shape and size of the necrotic zone are selected so that formation of the necrotic zone substantially deprives the undesired tissue mass of a blood supply, cause the ultimate destruction of the undesired tissue mass.

9. The method of Claim 6, wherein the desired shape and size of the necrotic zone are selected to control bleeding at a treatment site.